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Academic Performance Report (Logbook) Suggested for Evaluating Students in

Research-Based Courses

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Abstract

Evaluating students' academic performance at different levels and courses is one of the necessities of educational systems to improve the quality of learning, make optimal use of educational resources, and improve teaching and learning processes. In research-based courses, which focus primarily on research activities and practical skills, the need for accurate and comprehensive evaluation tools is increasingly felt. This study aimed to explain the effectiveness of using academic performance logs (logbooks) as a tool for evaluating students in research-based courses.

The study was conducted in a review manner by examining the keywords academic performance report, academic performance evaluation, information record book, logbook, and was used in Web of Science, Sid, Iran doc, Science Direct, Google Scholar, and Pubmed on Iranian and foreign sites. Relevant scientific research articles were extracted and their results were categorized and reported.

The study findings showed that the academic performance report (logbook) is an effective and efficient tool for evaluating students' learning and performance in various fields, disciplines, courses, and levels of education, especially in research-based courses. By accurately recording students' activities and achievements, this tool allows for a comprehensive and continuous assessment of their performance and can be used as a criterion for measuring academic progress and identifying students' strengths and weaknesses.

Evaluating student performance through the academic performance report not only helps students, professors, and the educational system to be aware of their academic status, but also allows for planning to

improve educational and research processes and address existing challenges. Using this tool can lead to improving the quality of education and strengthening students' motivation in research-based courses.

Keywords: Academic performance report, evaluation, student, research-based

Introduction

Evaluation is the collection, analysis, and interpretation of information to aid decision-making (1). It is the best indicator that shows the extent to which goals are achieved, analyzes the quality of a system's activities, provides logical and conventional results, and provides assurance as to the extent to which the educational system's performance is in line with the intended needs (2). The purpose of evaluation is to strengthen effective activities and methods and reduce or eliminate undesirable activities. There are a variety of tools and objectives to measure it in different domains (cognitive, emotional, psychological, and motor). These tools must be reliable, have appropriate and accurate measurement methods (6), and be defensible against current challenges such as unfair judgments (3).

Academic and student groups are among the audiences of the evaluation program. To achieve the goal of student education, evaluation must have an appropriate system and standards (3). While most students are unable to describe their performance in relation to the goals of the academic program and are generally unaware of the indicators needed to monitor their performance assessment progress. Accordingly, specifying performance assessment goals and indicators is an important step in improving student performance and progress (4). Evaluation records in most universities around the world indicate that trainees record their experiences and performances in a collection, and this is the basis for evaluating their performance (5). Iranian universities lack such a documented, scientific, and institutionalized evaluation system to measure the quality and legitimacy of their goals and performance (6). This is while previously in our country, improving and advancing students' curriculum using performance reports has been given limited attention and mostly in educational and clinical groups (7). However, the evaluation process still lacks a systematic and coordinated system and needs to be introduced, an integrated and practical method in this field. Such a practical method - academic report (activity record book) - while stating the general objectives of the course and the course process, records the student's performance in the subjects in question and during the course (8). The course supervisor provides an appropriate perspective on the content and nature of the students' educational experiences. It is a passive method from the teacher's point of view and active from the student's point of view (9). In addition to providing materials as a study guide, it also evaluates the student's learning, the teacher's performance, and the university's educational program, and prevents students from straying from the set goals (10). The use of performance report (learning activity record book) is important because, in addition to being inexpensive and easy, it is feasible and allows for the rapid and accurate collection of data related to educational goals for timely analysis and feedback to students (11). This report card can not only be used by the supervisor to evaluate the student and the curriculum, but also provides appropriate information to the student about the academic status and performance (12). Especially in research-based courses, whose main goal is to train committed, creative, and capable students who can respond to society's problems scientifically and practically, student performance evaluation is of particular importance. In these courses, students need a tool that not only continuously and accurately evaluates their research and scientific performance, but also helps them identify their strengths and weaknesses and stay on track with their educational and research goals. However, the lack of a well-documented and integrated evaluation system in Iranian universities, especially

in research-based courses, has brought with it several challenges. These challenges include a lack of transparency in evaluation criteria, inadequate feedback provided to students, and the inability of students to self-assess their performance. In addition, existing evaluation tools are often used in a fragmented and non-standard manner and cannot meet the specific needs of research-based courses. Accordingly, the need to design and introduce a comprehensive tool, such as the academic performance report (logbook), which can systematically and harmoniously evaluate student performance, is felt more than ever. This study aimed to explain the effectiveness of using the academic performance report (logbook) as a tool for evaluating students in research-based courses, in order to take a step towards eliminating existing gaps and improving the quality of the evaluation process in the educational system.

Methods

The research was conducted as a review. In order to conduct this research, articles published on student performance assessment and their performance records with the aim of evaluating the level of learning and quality of student performance in Iran and other countries were reviewed. Due to its executive and applied nature, the subject under study has rarely been studied as a research article. However, an attempt was made to search as many scientific sources as possible in this field and extract the necessary information.

For the search, keywords such as academic performance record, academic performance evaluation, information record book, and log book were used. This search was conducted in reputable scientific databases such as Web of Science, Sid, Iran doc, Science Direct, Google Scholar, and Pubmed. In total, 20 studies were retrieved, of which 5 were unavailable or were not related to the objectives of this study in the text. Of the remaining 15 articles, 8 were in Persian and 7 were in English, which were included in the study.

Then, the collected information was categorized and analyzed. This classification was based on the main topics of the studies, the evaluation methods used, the educational settings and the results of the studies. The aim of this classification was to provide an overview of the current situation and identify gaps and further needs in the field of student performance evaluation.

Finally, the results of the review of the articles were analyzed and reported based on the objectives of the study. These results were used to provide practical recommendations for improving the quality of learning and student performance in research-based courses.

Results

Considering the main purpose of the study, the results of research related to the subject of students' academic performance record are presented in the table:

Researcher	Study Population	Title or Objective	Results
Avizhgan	Ophthalmology Department Externs	Using Log Book as an Intervention for Ophthalmology Department Externs	The students' performance and training in clinical areas were poor (13). This weakness could be related to a lack of practical experience, inadequate training in specialized skills, or a lack

			of constructive and targeted feedback from professors.
Garak yaraghi	Medical School Trainees in the ENT Department	Report on Log Book Completion in the ENT Department of Isfahan Medical School Internships	The students' performance and training in clinical areas were poor (14). The lack of standardized and systematic evaluation tools to measure students' performance in clinical settings can lead to a failure to identify challenges in a timely manner and, as a result, a failure to improve their performance.
Lotfi	Nursing Students of Tabriz Medical Sciences Internship	Use of Clinical Learning Guide in Training of Internship Nursing Students	The learning activity logbook increased learning in the knowledge and skills domains (15). Using a learning activity log helps students achieve deeper and more lasting learning because they are continuously engaged with the content being learned and actively process the information.
Yarmoham madian	Hospital Directors and Support Assistants of the University of Medical Sciences	Proposed Model for Evaluation of Suggested Trainings Evaluation of Postgraduate Trainings	To improve the achievement of educational goals, the educational system should use appropriate educational evaluation mechanisms (3) and they should be designed in a way that not only facilitates the achievement of educational goals, but also allows for the identification of strengths and weaknesses in the educational process.
Avizhgan	Medical Trainees of Isfahan University of Medical Sciences	Determining the Level of Achievement of Minimum Competencies of Advanced Internship Course Using Log Book	The level of achievement of the minimum competencies required by the trainees is far from the ideal situation. The situation needs intervention to improve (16).
Dehghani	Medical Trainees of Isfahan University of Medical Sciences	Program Evaluation: A Different Function for Clinical Performance Record	If students are justified about the importance of evaluation, the clinical performance report card is a useful method for evaluation (17). This process can help them progress in their studies by identifying and working on their strengths and weaknesses.
Mokhtar pour	Trainees and Interns of Shiraz University of Medical Sciences Majors	Educational Needs Assessment and Assessment of the Status of Community-Based Medical Sciences through Preparation and Compilation of Log Books	The development and implementation of a logbook has been very effective in organizing courses, specifying goals, and awareness of acquiring minimum educational requirements during the course (18).
Hosseinpour	Students of the Isfahan Medical Sciences Clinical	Evaluation of Medical Interns Regarding Training in Surgery Course	If the appropriate method was not used to guide these students in their learning, they would not have gained the necessary experiences (19).

	Medical Training Course		
Gill Coates	Students of the Emergency Department	Emergency Medicine: A Standard Experience for Medical Students	Students who have a learning activity logbook (performance log) have performed better than other students (20).
Helenius	Final Year Medical Students in Finland	Surgical Skills of Medical Students' Graduation	The use of clinical performance logs has been associated with the level of student competence (21). Student competency, which includes a set of knowledge, skills, attitudes, and professional abilities necessary to perform tasks in clinical settings.
Markham	Medical Students	Evaluation of Clinical Experiences of Medical Students in Family Medicine Internship	Recording student performance allows professors to determine whether students have achieved or not achieved learning (22).
Ajh	Midwifery Students of the Obstetrics and Gynecology Department	Evaluation of Midwifery Students: Comparison of Two Methods of Performance Record and Checklist	Benefits of performance logs: 1- As a medium for evaluating small groups, 2- A convenient opportunity for professors to evaluate student activities, 3- Serious interaction between professors and students due to the use of immediate encouragement and guidance (23).
Denton	Medical Students	Sensitivity of Students' Electronic Performance Record in Assessing Individuals at Risk	Student performance logs are not sensitive enough to assess students at risk (24).
Stieger	Students of the University of Medical Sciences and Teaching Hospitals	Learning Objectives in Performance Record Predict Problems in Teaching Hospitals	The performance log has been able to pursue the goal of maintaining coordinated education between the University of Medical Sciences and teaching hospitals (25). Coordination between the University of Medical Sciences and teaching hospitals helps students better combine their educational experiences in clinical and theoretical environments.
Yousef	Educational Instructors of Nursing Students	Clinical Skills Performance Record of Nursing Students in the Field of Cardiac Care Unit	Performance report cards can be a useful tool for assessing the clinical skills of nursing students in the cardiac care unit (26).

Discussion

This study was conducted to explain the importance of the role of using academic performance reports in the successful evaluation of the quality and academic status of students. Lotfi et al., Yarmohammadian et al., Dehghani-Poodeh et al., Mokhtarpour et al., Hosseinpour et al., and Coates and Gill reported in their studies that to improve the achievement of educational goals, the educational system must use appropriate educational evaluation mechanisms. Recording information in the academic performance report has been

effective in achieving educational goals and academic progress of students. This method makes students, professors, and the educational system aware of their strengths and weaknesses, lesson scheduling, and the level of progress and quality of education, and provides timely feedback for possible changes and adjustment of activities. In this regard, various researchers such as Markham et al., Ajh, and Yousefi et al. emphasized that professors can measure student learning and receive appropriate feedback through the performance report.

Regarding the ability of this method to measure student learning and performance, some researchers such as Avizhgan et al., Avizhgan et al., and Gerak Yaraghi et al. reported that the students in the study had poor performance. As an inconsistent result, Denton et al. reported that the performance report does not have the necessary sensitivity to assess students at risk. On this basis, it seems that in special situations it is necessary to use different evaluation and measurement methods that are appropriate to the conditions. Helenius et al., Ajh and Stieger et al. also emphasized in separate studies the usefulness of the role of the academic performance report in different situations, including coordinating training and improving teacher-student interaction. The scientific literature studied has emphasized and examined the student performance report in relation to training-oriented courses and more in medical fields. While recently, there has been a great emphasis on research-oriented postgraduate education. In research-based education, the goal is to educate individuals who, while gaining knowledge of related sciences in a specific field and becoming familiar with advanced research methods, can provide a suitable platform for solving current problems in society and innovatively strive to improve the health of society (27). Given that the nature of these courses is research-based and applied, such an evaluation method can lead to the educational system receiving feedback and making subsequent decisions and new policies. In this regard, it is recommended that universities that operate on the basis of a research-based system use this method to evaluate student performance in a planned and purposeful manner. Researchers should also have a scientific and accurate assessment of the ability and quality of this method in evaluating student performance.

Due to the review nature of the study, it was not possible to directly assess the effectiveness of the academic performance logbook in real-world educational settings. This limitation may have affected the study's ability to provide practical and empirical evidence.

According to the findings of the study, it is suggested that the evaluation goals and indicators for each academic course should be precisely defined. These goals and indicators should include elements such as knowledge acquisition, practical skills, research abilities, and other aspects related to research orientation. Also, the academic performance report card should be made available to students in digital or paper form. Students should regularly record their activities in the report card and document their progress throughout the academic course.

References

1.Airasian PW. Classroom Assessment. New York: McGraw-Hill, 1997: 63-8
2. Farzinpour F. sedighichilani M. Zynaloo A. Eshraghian. Fifty Educational Evaluation in Clinical and Basic Science Department at the Tehran University of Medical Science. Iranian Journal of Medical Education, 2005; 5 (14): 114 (Persian)
3. Yarmohammadian M, Sadeghi F, Ehteshami A, Salarianzadeh M, Kasaei M. Proposed model for evaluating trainings for the evaluation of post-graduate trainings. Iranian Journal of Education in Medical Sciences (Special Issue on Education Development), (10)5, 2010.

4. Sadoughi F, Amin Pourf. Training in the evaluation stages of health information systems. Iranian Journal of Education in Medical Sciences (Special Issue on Cooperation Development), 10(5), 2010.

5. Department of Principles, Techniques and Management of Nursing and Midwifery Services. Nursing and Midwifery Services Management Internship Activity Record Book, Golestan University of Medical Sciences, Boyeh School of Nursing and Midwifery, Gorgan, 2012

6. Hosseini Nejad Z. Mousapour N. Assessing internal efficiency indicators for medical education at Kerman University of Medical Sciences. Iranian Journal of Medical Education, 2004; 4(1): 4-12 (Persian)

7. Roshangar F. Lotfi M. Zamanzadeh V. Abdolahzadeh F. Davoodi A.The effect of using Log book on nursing student's learning. Iranian Journal of Medical Education, 2012; 10(1): 64-70 (Persian)

8. Instructors of the Psychiatric Nursing Department, Fatimah (S) School of Nursing, Daily Record of Practical Activities of Undergraduate Nursing Students, Fatimah (S) School of Nursing and Midwifery, 2011

9. Azizi F. Medical education: mission, vision and challenges. Tehran: Ministry of Health and Medical Education, 2003 (Persian)

10. Jolly B. Clinical logbooks: recording clinical experiences may not be enough. Med Educ, 1999; 33(2): 86-8

11. Denton DG. Demott C. Pangaro LN. Hemmer PA. Narrative review: use of student- generated log books in undergraduate medical education. Teach Learn Med, 2006; 18(2): 133-164.

12. Bruce NC. Evaluation of procedural skills of internal medicine residents. Acad Med, 1989; 64(4): 213-216.

13. Avizhgan M, KianErthi F, Fekar M. Using Log Book as an Intervention for Ophthalmology Department Externs 83. Iranian Journal of Education in Medical Sciences (Special Issue of the Seventh National Conference on Medical Education), (14)5, 2005

14. Garak Yaraghi M, Raqqae M, Avizhgan M. Report on completing the Log book in the ENT department of Isfahan Medical School trainees. (14) 5, 2005.

15. Lotfi M, Zamanzadeh V, Abdollahzadeh F, Davoodi A, Roshangar F, Rasouli A. Using clinical learning guides in training nursing internship students. The second Shahid Motahari Educational Festival at Tabriz University of Medical Sciences, Tabriz Medical Sciences Education Studies and Development Center, 2009.

16. Avizhgan M, Omid A, Dehghani M, Esmaili A, Asilian A, Akhlaqi M, Nasri P, Hosseini M, Ashhourion V. Determining the level of achievement of minimum competencies in the advanced internship course of Isfahan Medical School using Log book. Iranian Journal of Education in Medical Sciences (Special Issue on Education Development), (10)5, 2010: 543-550

17. Dehghani-Poodeh M, Omid A, Ashhourion V, Avizhgan M, Esmaili A, Akhlaqi M, Nasri P, Hosseini M, Asilian A. Program evaluation: A different function for clinical performance records. Iranian Journal of Education in Medical Sciences (Special Issue on Education Development), 10(5), 2010.

18. Mokhtarpour S, Amini M, Nabii P, Safari Z, Barzegar M. Educational needs assessment and evaluation of the status of community-based medical sciences through the preparation and compilation of logbooks of internships and training courses in all disciplines of Shiraz University of Medical Sciences, Superior Educational Processes of Shiraz University of Medical Sciences, Fifth Shahid Motahari Educational Festival, 2012.

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19. Hossein pour M. Behdad A. Samii H. Assessment of medical inters opinion about education in surgery courses in Isfahan University of Medical Sciences. Iranian Journal of Medical Education, 2001; 1(3): 30-35 (Persian)

20. Coates WC. Gill AM. The emergency medicine sub internship: a standard experience for medical students? Acad Emerg Med, 2001; 8(3), 253-258.

21. Helenius I. Sinissari I. Hivvensalo E. Remes V. Surgical procedure skills of graduating medical students: effects of sex, working, and research experience. Journal of Surgical Research, 2002; 102(2): 178-184.

22. Markham FW. Rattner S. Hojat M. Louis DZ. Rabinowitz C. Gonnella JS. Evaluation of medical students' clinical experiences in a family medicine clerkship: Different in patient encounters by disease severity in different clerkship sites. Family Medicine, 2002; 34(6): 451-454.

23. Ajh N. Evaluation of midwifery students in labor and Delivery Training: comparing tow methods of log book and checklist. Iranian Journal of Medical Education. 6(2): 2006: 123-128 (Persian)

24. Denton, GD. Hoang, T. Prince, L. Moores, L. & Durning, S. Accuracy of Medical Student Electronic Logbook Problem List Entry. Teach Learn Med , 2007;19(4): 347-351

25. Stieger, S. Praschinger, A. Kletter, K. Kainberger, F. Learning objectives in logbooks as indicators of problems in teaching hospitals. Journal of Medical and Biological Sciences, 3(1), 2009, 1-6.

26. Yousefy A. Shayan Sh. Mosavi A. Developing a clinical performance logbook for nursing students receiving cardiac care field training. Journal of Education and Health Promotion 2012; 1

27. Mahmoudzadeh A, Sahami A. Analysis of the current status of research-based postgraduate education in Iran and its place in the comprehensive scientific role of the country. The first national conference on challenges and solutions for the development of research-based postgraduate education in Iran, 2012.